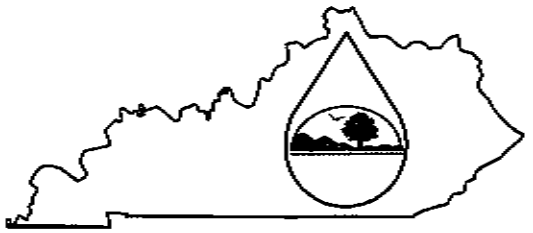
KPDES FORM SDAA



Kentucky Pollutant Discharge Elimination System (KPDES)

Socioeconomic Demonstration and Alternatives Analysis

The Antidegradation Implementation Procedure found in 401 KAR 10:030, Section 1(3)(b)3 requires KPDES permit applications for new or expanded discharges to waters categorized as "Exceptional or High Quality Waters" to conduct a socioeconomic demonstration and alternatives analysis to justify the necessity of lowering local water quality to accommodate important economic or social development in the area in which the water is located. This demonstration shall include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

I. Project Information

Facility Name: Frasure Creek Mining, LLC DNR Permit 897-0497

Location: Bulan, KY	**County: Perry County**

Receiving Waters Impacted: Harris Branch of Lost Creek

II. Socioeconomic Demonstration

1. **Define the boundaries of the affected community:**
(Specify the geographic region the proposed project is expected to affect. Include name all cities, towns, and counties. This geographic region must include the proposed receiving water.)

The project will affect Dice, KY, Hazard, KY and other smaller communities in Perry Co. and Knott in the Eastern Kentucky Coal Field Region. The receiving waters are Harris Branch of Lost Creek.

2. **The effect on employment in the affected community:**
(Compare current unemployment rates in the affected community to current state and national unemployment rates. Discuss how the proposed project will positively or negatively impact those rates, including quantifying the number of jobs created and/or continued and the quality of those jobs.)

The US unemployment rate is 10%. The Kentucky unemployment rate is over 10% and the unemployment in Perry counties is 11.7%. This project will directly employ approximately 25 individuals. Utilizing the 3:1 ratio of direct and indirect jobs created by the coal industry, this project will add an additional 75 jobs in other field that provide services to the mining industry. The total unemployed people in Perry Co. is 1327. If this total is reduced by 75, the unemployment of Perry Co. falls to 11.0%. The average weekly wage for mining in Perry Co. is $1,284 and $729 for all other industries. These mining jobs pay better than other jobs in the county. The above information was from www.thinkkentucky.com.

II. Socioeconomic Demonstration- continued

The effect on median household income levels in the affected community:
(Compare current median household income levels with projected median household income levels. Discuss how proposed project will positively or negatively impact the median household income in the affected community including the number of households expected to be impacted within the affected community.)

The 2008 median household income adjusted for inflation for a family in Perry Co. according to the US census is $28,124. The jobs created by this project will pay at least 25% more than the average pay expected from other employment in Perry Co. The $40,000 in wages and benefits that each of the 25 employees receives will be at least $15000 greater than the median household income. The number of households affected will be at least 25. In addition to the 25 jobs provided by this project, it will also provide more employment indirectly in mining service jobs. Studies indicate that the mining industry create 3 indirectly related jobs for each actual direct mining position.* These jobs include equipment sales, mining engineering consultants, food service, fuel sales, transportation, coal washing and blending.

*Source: university of Kentucky Center for Business and Economic Research: Economic Impact Analysis of Coal in Kentucky, (1995-2004) by Haywood and Baldwin.

4. **The effect on tax revenues of the affected community:**
(Compare current tax revenues of the affected community with the projected increase in tax revenues generated by the proposed project. Discuss the positive and negative social and economic impacts on the affected community by the projected increase.)

The proposed coal mining project will increase tax revenues for Perry. The company extracting the coal must pay a 4.5% tax on the sale price of the coal less transportation costs. Approximately 90% of the severance tax is returned to the county from which it has been extracted. The current tax revenue of the county will be increased by the additional tax revenues created by the extraction of this coal.

The increased revenues will enable the local governments to extend water and sewer lines and improve roads in the county.

II. Socioeconomic Demonstration- continued

The effect on an existing environmental or public health in affected community:
(Discuss how the proposed project will have a positive or negative impact on an existing environmental or public health.)

The project will reclaim approximately 10 acres that was mined prior to 1977. The reclamation of this area will reduce siltation that is entering the receiving streams of Harris Br. and Lost Cr. The reclamation of this area will also eliminate a highwall that is a safety hazard for the residence of Perry Co. The ponds proposed will catch the runoff from these areas allowing silt to settle. The mining should result in a positive impact to the receiving water by reclaiming the previous mining.

6. **Discuss any other economic or social benefit to the affected community:**
(Discuss any positive or negative impact on the economy of the affected community including direct and or indirect benefits that could occur as a result of the project. Discuss any positive or negative impact on the social benefits to the community including direct and indirect benefits that could occur as a result of the project.)

The project will increase employment in Perry County. For each mining job created there are approximately 3 indirect jobs created. The coal severance tax paid for the extracted coal will be partially returned to Perry Co. These revenues will be used to improve the infrastructure of the counties. Additional income will be available to private citizens by the purchasing of goods and services by the applicant. This income will benefit the citizens by increasing their incomes. The mining site will create access and recreation opportunities to areas that were not available before the mining took place.

III. Alternative Analysis

1. **Pollution prevention measures:**
(Discuss the pollution prevention measures evaluated including the feasibility of those measures and the cost. Measures to be addressed include but are not limited to changes in processes, source reductions or substitution with less toxic substances. Indicate which measures are to be implemented.)

The applicant proposes constructing a series of ponds to intercept runoff from the mining. The ponds will cost about $30,000. The mining operation will be conducted to try and capture the silt in the runoff before it reaches the ponds. The applicant will do this by limiting the amount of disturbance at any one time and reclaiming the area as quickly as possible after mining. The final grading of the mining area will use minimal grading so that the slopes retain runoff and silt is captured within the mine spoil. Ditches used to route runoff to the treatment ponds will include sediment traps periodically within the ditches. The regulations of mining require that runoff pass thru a pond, so there is no alternative to the proposed pond. Another method pollution prevention measure evaluated was the alternative to deep mine rather than surface mine the coal. This method was eliminated because this method would retrieve approximately 50% of the coal within the area proposed for mining, whereas surface mining would retrieve approximately 90% of the reserve.

2. **The use of best management practices to minimize impacts:**
(Discuss the consideration and use of best management practices that will assist in minimizing impacts to water quality from the proposed permitted activity.)

The applicant will have a best management practices plan in-place and all persons responsible for implementing the plan will be made familiar with the plan. The plan will include minimizing the size of disturbance at any one time and establishing vegetation on disturbed areas as quickly as possible. The perimeter of the downstream mine areas will be lined with straw bales or silt fence to intercept silt and prevent the silt from leaving the permit area.

3. **Recycle or reuse of wastewater, waste by-products, or production materials and fluids:**
(Discuss the potential recycle or reuse opportunities evaluated including the feasibility of implementation and the costs. Indicate which of, of these opportunities are to be implemented)

In order to reuse or recycle the water, the only viable option is to use it to spray over the backfill to promote vegetative growth or dust suppression. The runoff captured by the proposed ponds will be used for dust suppression on the mine. The runoff captured by the proposed ponds will also be used to fill the hydroseeder when seeding the reclaimed areas. The reuse of the runoff for dust suppression and filling the hydroseeder would be less than 5% of the total runoff.

III. Alternative Analysis - continued

Application of water conversation methods:
(Discuss the potential water conservation opportunities evaluated including the feasibility of implementation and the costs. Indicate which of, of these opportunities are to be implemented)

Water conservation will be implemented by using water captured by the ponds as dust suppression. The water will be pumped into trucks and distributed onto areas of the permit that have the potential to create fugitive dust. Water captured by the ponds will also be used to fill the hydroseeder when permit areas are to be seeded. Both of these uses will use a very small percentage of the annual runoff. The cost of dust suppression and use of the hydroseeder is approximately $100,000 annually.

5 **Alternative or enhanced treatment technology:**
(Compare feasibility and costs of proposed treatment with the feasibility and costs of alternative or enhanced treatment technologies that may result in more complete pollutant removal. Describe each candidate technology including the efficiency and reliability in pollutant removal and the capital and operational costs to implement those candidate technologies. Justify the selection of the proposed treatment technology.)

Coal mining runoff has effluent parameters for pH, sediment, iron and manganese. The applicant has chosen to build a settling pond to capture and treat the runoff. The applicant could also put a chemical flocculant into the pond to settle sediment. To treat pH the applicant could chemically treat water in the pond to raise or lower the pH. To remove iron and manganese from the pond the applicant could chemically treat the runoff. To install and maintain a treatment facility for this runoff would cost at least $500 a month. The pond must be in-place for two years after the final seeding. The pond is expected to be in-place for three years at a total cost of $18,000. This treatment plan would offset the expected profit from the mining.

III. Alternative Analysis - continued

6. **Improved operation and maintenance of existing treatment systems:**
(Discuss improvements in the operation and maintenance of any available existing treatment system that could accept the wastewater. Compare the feasibility and costs of improving an existing system with the feasibility and cost of the proposed treatment system.)

See Attachment

7. **Seasonal or controlled discharge options:**
(Discuss the potential of retaining generated wastewaters for controlled releases under optimal conditions, i.e. during periods when the receiving water has greater assimilative capacity. Compare the feasibility and cost of such a management technique with the feasibility and cost of the proposed treatment system.)

The generated waste waters include the flow from the mining disturbance and the flow from forestland that will be captured by the sediment pond. To capture the flow and silt generated from a storm larger than the 10 year 24 hour, the mine spoil will be minimally compacted so that precipitation that falls on the area is absorbed within the mine spoil. This results in a slow release to the surface water system and holds the silt generated within the backfill. The minimally compacted spoil also promotes the re-establishment of trees after mining. This method allows controlled releases under optimal conditions when the receiving water has greater assimilative capacity. The ponds that are to capture this runoff have been designed to meet the effluent requirements during the 10 year 24 hour storm. The minimal compaction of the spoil retains the generated wastewater for controlled release, thus there is no comparison to be made.

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III. Alternative Analysis
6. Improved operation and maintenance existing treatment systems:

There are treatment facilities for other surface mines in the area but are located in watersheds that would not intercept runoff from the proposed mine. The nearest treatment plant is located in Hindman, KY about 20 miles.

To capture the runoff and divert the water through pipes to the Hindman Municipal treatment systems would require the laying of pipe for almost 20 miles. The cost to lay pipe of sufficient size and at sufficient depth and to cross the streams and roads to get to the plant would average $10/foot ($5/ft for materials and $5/ft. for installation) and would cost $10(20)5280 = $1,056,000. This cost would offset the net income expected from this mining. Catch basins with drop inlets would also be needed to capture the runoff and channel the water into the sewer lines. These structures would cost at least another $10,000 to 20,000.

To intercept the runoff from the proposed mining area and get it to other surface mine treatment facilities in the area would require either capturing the runoff and pumping it into a truck to be hauled to the treatment facility or capturing the runoff and pumping it into waterlines to carry the runoff to the treatment facilities at other surface mines. The average runoff over a year for an acre of forested land in Perry Co. is 36/12(.73) = 2.19 acre/feet.

36" average rainfall
73% average runoff

There are 325,851 gallons of water in an acre/foot. The discharge points associated with this surface mine captures 39 acres. The ponds will be treating 39(2.19)(325,851) = 27,830,933 gallons of water per year. According to the Agriculture Dept. it costs $42 to pump 325,851 gallons. It would cost the applicant $42(27,830,933/325,851) = $3587/year to pump the runoff from this permit area. The topography of this area would limit the ability to pump water to other treatment facilities. The topography of this area is very steep with the landscape dissected by many valleys and ridges, which would have to be crossed before treatment at other mines would be reached. The difference in elevation between the valley floor and ridgelines is on average 250 feet. To cross these valleys and ridges with water lines lift stations would have to be installed, which would add to the cost of pumping the water. The other treatment facilities in the area are sediment control ponds for surface mining. These facilities would have to upgraded to receive additional discharge.

Another option that was considered was trucking the water to be treated to the municipal Hindman water treatment facility. This facility is located approximately 20 miles from the discharge points. The runoff would first have to be captured, this would involve constructing ponds to capture the runoff. It would cost at least $10,000 to construct a pond with the capacity required to hold the runoff before trucking. After capturing the runoff the water would need to be pumped into trucks. According to the Agriculture Dept. it costs $42 to pump 325,851 gallons. It

III. Alternative Analysis - continued

8 Land application or infiltration or disposal via an Underground Injection Control Well

(Discuss the potential of utilizing a spray field or an Underground Injection Control Well for shallow or deep well disposal. Compare the feasibility and costs of such treatment techniques with the feasibility and costs of .proposed treatment system.)

See Attachment AA 8.

9 Discharge to other treatment systems

(Discuss the availability of either public or private treatments systems with sufficient hydrologic capacity and sophistication to treat the wastewaters generated by this project. Compare the feasibility and costs of such options with the feasibility and costs of the proposed treatment system.)

See Attachment AA 9.

IV Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Title:	**Kenneth G. Woodring, President**	**Telephone No.:**	(304)204-1455
Signature:	⊗ Kenneth G Woodring	**Date:**	FEBRUARY 01, 2010

KPDES Form SDAA
III Alternatives Analysis

8. Land application or infiltration or disposal via an Underground Injection Control Well

In order to reuse or recycle the water, the only viable option is to use it to spray over the backfill to promote vegetative growth or use water collected in ponds for dust suppression. The runoff captured by the proposed ponds will be used for dust suppression on the mine. The runoff captured by the proposed ponds will also be used to fill the hydroseeder when seeding the reclaimed areas. The reuse of the runoff for dust suppression and filling the hydroseeder would be less than 5% of the total runoff.

Subsurface disposal would entail allowing the water to run into underground mines in the area or drilling holes from the surface to underground mine voids. There are underground mine voids in the permit vicinity but are not very extensive. The mine portals are also above drainage so if runoff is directed to these voids it would eventually discharge to the surface. To capture the runoff expected from this operation would require constructing a detention facility. The facility would have to hold at least the runoff from three days. To capture the runoff from the mining area, would require the construction of at least 5 holding facilities at a cost of approximately $55,000 each. Since the underground mines lie above drainage, an injection well would have to be drilled. The subsurface in this area is shale, sandstone, clay and coal all of which have a high cohesion and a small pore space. The available pore space to accommodate the runoff from this site is insufficient to inject the runoff into wells, so this option was eliminated from consideration.

On-site disposal entails the information given in question 4 regarding settlement. This is the method chosen for this project.

9. Discharge to other treatment systems

There are treatment facilities for other surface mines in the area but are located in watersheds that would not intercept runoff from the proposed mine. There are no municipal or other treatment facilities within 10 miles of the proposed mine. The nearest downstream municipal system is located at Hindman, KY about 20 miles from the proposed permit area. To capture the runoff and divert the water through pipes to tap into the Hindman Municipal treatment system would require the laying of pipe for almost twenty miles. The cost to lay pipe of sufficient size and at sufficient depth and to cross the streams and roads to get to Hindman would average $20/foot and would cost $20(20)5260 = $2,104,000. This cost would offset the net income expected from this mining.

To intercept the runoff from the proposed mining area and get it to other surface mine treatment facilities in the area would require either capturing

Question 9 Continued

the runoff and pumping it into a truck to be hauled to the treatment facility or capturing the runoff and pumping it into waterlines to carry the runoff to the treatment facilities at other surface mines. The average runoff over a year for an acre of forested land in Perry Co. is 36/12(.73) = 2.19 acre/feet.

36" average rainfall
73% average runoff

There are 325,851 gallons of water in an acre/foot. The 3 discharge points associated with this surface mine capture on average 13 acres. The ponds will be treating 13(2.19)(325,851) = 9,276,977 gallons of water per year. According to clarkpublicutilities.com it costs 2.2 cents per day to pump a gallon of water or 365(2.2) =$8.03/year. It would cost the applicant 9,276,977 ($8.03) = $74,494,133/year to pump the runoff from this permit area. The cost to pump the runoff from this mine to other facilities would far exceed the income expected from the mining of the coal. The topography of this area would limit the ability to pump water to other treatment facilities. The topography of this area is very steep with the landscape dissected by many valleys and ridges, which would have to be crossed before treatment at other mines would be reached. The difference in elevation between the valley floor and ridgelines is on average 250 feet. To cross these valleys and ridges with water lines lift stations would have to be installed, which would add to the cost of pumping the water.